UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

FLOODS OF MARCH 1978 IN THE MAUMEE RIVER BASIN, NORTHEASTERN INDIANA

By Richard E. Hoggatt

Open-File Report 81-695

Prepared in cooperation with the
Indiana Department of Natural Resources,
city of Fort Wayne, Indiana, and
Corps of Engineers, U.S. Army

Indianapolis, Indiana
July 1981

CONTENTS

	Page
Abstract	1
Introduction	1
Acknowledgments	3
Weather conditions preceding floods	3
Description of the floods	3
References	10

ILLUSTRATIONS

		Page
Figure 1.	Map showing precipitation in the Maumee River basin, northeastern Indiana and western Ohio, March 19-21, 1978	2
2.	Hydrographs of discharges at selected U.S. Geological Survey gaging stations in the Maumee River basin, northeastern Indiana, March 10-May 1, 1978	8

TABLES

		Page
Table 1.	Summary of flood discharges in Maumee River basin, northeastern Indiana and western Ohio, March 1978	6
2.	Daily discharges at selected U.S. Geological Survey gaging stations in the Maumee River basin, northeastern Indiana and western Ohio, March 10-May 1, 1978	11

FACTORS FOR CONVERTING INCH-POUND UNITS TO INTERNATIONAL SYSTEM OF METRIC UNITS (SI)

Multiply inch-pound units	By	To obtain SI units
inch (in.)	25.4	millimeter (mm)
foot (ft)	0.3048	meter (m)
mile (mi)	1.609	kilometer (km)
square mile (mi^2)	2.590	square kilometer (km^2)
cubic foot per second (ft^3/s)	0.02832	cubic meter per second (m^3/s)
cubic foot per second per square mile [$(ft^3/s)/mi^2$]	0.01093	cubic meter per second per square kilometer [$(m^3/s)/km^2$]

FLOODS OF MARCH 1978 IN THE MAUMEE RIVER BASIN, NORTHEASTERN INDIANA

By Richard E. Hoggatt

ABSTRACT

Floods in the Maumee River basin in northeastern Indiana in March 1978 resulted in heavy damage in Fort Wayne and surrounding areas. Flood damage in Fort Wayne was estimated by the Mayor to be 11 million dollars. Approximately 15 percent of the city was inundated, and 2,400 of its 190,000 residents were forced to leave their homes. The estimate of damage in Adams and Allen Counties by Civil Defense officials was 44 million dollars.

The Maumee River at New Haven exceeded the peak stage of record, 21.4 feet, by 2.2 feet. The peak discharge at this stream-gaging station, 22,400 cubic feet per second, was about equal to that of a 75-year flood. Recurrence intervals of peak flows on streams tributary to the Maumee River ranged from 5 to 50 years. Records of peak and daily discharges and some precipitation data are given in this report.

INTRODUCTION

The floods of March 1978 in the Maumee River basin (fig. 1), northeastern Indiana and western Ohio, caused much damage. The major emphasis of this report is on the Indiana part of the basin, but some data are presented for adjacent areas in the western part of Ohio. Flood damage in Fort Wayne was estimated by the Mayor to be 11 million dollars. Damage in Adams and Allen Counties was estimated by Civil Defense officials to be 44 million dollars. About 15 percent of Fort Wayne was estimated to have been under water, according to the Indianapolis Star of March 24, 1978, as the stage on the Maumee River rose to 9 ft (feet) above flood stage. About 2,400 of the 190,000 residents in Fort Wayne vacated their homes, according to the Fort Wayne News Sentinel of March 28, 1978.

The purpose of this report is to present hydrologic data in more detail than those published regularly in annual reports. Included are analyses of the meteorological aspects of the storm, flood stages and discharges, recurrence intervals of peak discharges, and hydrographs of discharge at gaging stations.

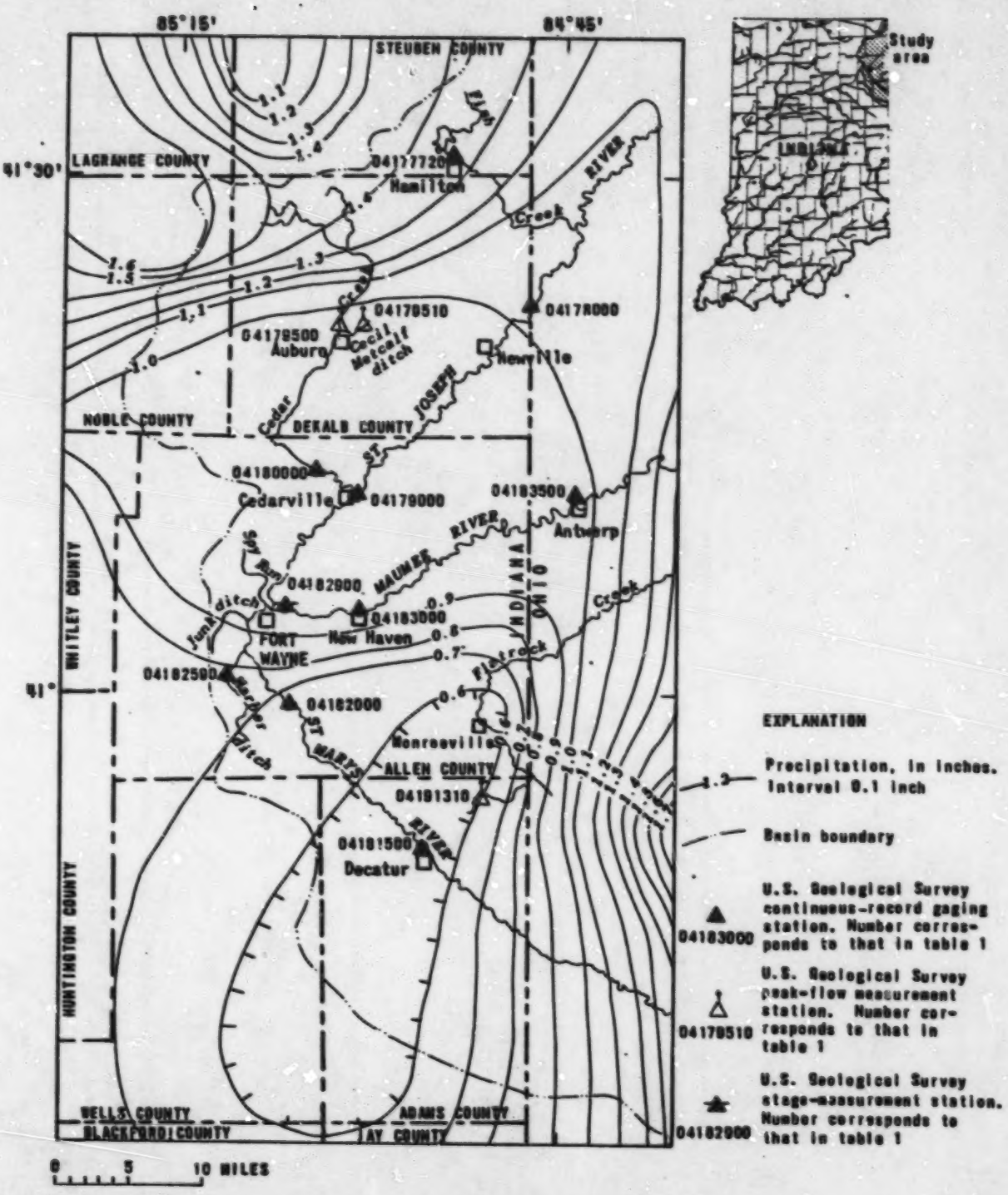


Figure 1.-- Precipitation in the Maumee River basin, northeastern Indiana and western Ohio, March 19-21, 1978. Prepared from data of National Oceanic and Atmospheric Administration (1978 a, b, and c).

ACKNOWLEDGMENTS

The National Oceanic and Atmospheric Administration (1978a, b, and c) provided precipitation data; the Fort Wayne News Sentinel, the Fort Wayne Journal Gazette, and the Indianapolis Star quoted estimates of damage and noted some extent of damage. Funds for the collection of data were provided by the Indiana Department of Natural Resources, the Corps of Engineers, U.S. Army, and Fort Wayne, Indiana.

WEATHER CONDITIONS PRECEDING FLOODS

Weather conditions from January to March set up a framework for the floods that were triggered in March by rising temperature accompanied by rain. A series of unusually heavy snows fell in the basin on January 9. By mid-January, about 5 in. (inches) of snow had accumulated. The "Blizzard of 1978," which hit the Maumee River basin in the early morning hours of January 26, brought the accumulation of snow to 17 in. at Fort Wayne and 22 in. at Waterloo and Berne. The water equivalent of the snow at the end of the month was 3.0 in. at Fort Wayne.

Additional snowfalls during early February kept the snow depth from diminishing and the water equivalent increasing until the temperature rose to a maximum of 35° F (Fahrenheit) or 1.7° C (Celsius) on February 24 and 25. The above-freezing temperature reduced the water equivalent of the snow at Fort Wayne from 4.2 in. during mid-February to 2.0 in. on February 28.

In the first few days of March, an additional 2 in. of snow accumulated throughout the basin. On March 4, the accumulation began to diminish slowly as the temperature rose. However, the water content of the snow at Fort Wayne was still 2.0 in. on March 13. On March 13 and 14, about 1 in. of rain that fell on melting snow set the stage for the coming flood.

DESCRIPTION OF THE FLOODS

By March 19, most of the snow was gone, except for a layer of old crusted and frozen ice and snow that remained on the ground when the blizzard hit in January. This layer had helped to retain some of the water content of the melting snow that accumulated on top of it. At 6 p.m., rain began to fall. The rain continued until 7 a.m., March 21. The layer of ice and frozen snow melted and began to run off. The combination of this melting snow layer and

rainfall ranging from 0.54 in. at Monroeville to 1.6 in. in the headwaters of Cedar Creek (fig. 1) resulted in flood discharges with recurrence intervals ranging from 5 to 50 yr (years) on tributaries of the Maumee River and 75 yr on the Maumee River at New Haven (table 1).

The two streams that join in Fort Wayne to form the Maumee River (the St. Joseph and St. Marys Rivers) were carrying flood waters estimated to have about 25-yr and 50-yr recurrence intervals, respectively. The combination of their flood flows at their confluence caused the greatest flood in Fort Wayne since 1913. (See peak stages in table 1.) The stage at the gage on the Maumee River at Anthony Boulevard in Fort Wayne, whose stage record began in 1907 by the National Weather Service, was 2.3 ft lower on March 24, 1978, than on March 26, 1913 (table 1), but was 1.6 ft higher than on May 19, 1943, date of the previous second highest flood.

The flood peaks were unusually broad because the flood was formed by the melting snow and rains over a period of 1½ days. The Maumee River remained above flood stage at Anthony Boulevard from March 17 to April 2.

High stages on major streams in the Fort Wayne area, produced backwater conditions on some of the smaller tributaries, especially Spy Run and Junk ditch, tributaries of the St. Marys River. Backwater in Junk ditch overflowed the drainage divide and flowed from the Maumee River basin into the Wabash River basin. The only measurement of backwater discharge for Junk ditch during the flood was 186 ft^3/s at Smith Road on March 22, 1978. Whether this measured discharge was the peak flow leaving the basin is not known because continuous records are not available.

At Antwerp, Ohio, 28 mi downstream from the gage on the Maumee River at New Haven, Indiana, the flood peaked 35 hours earlier than at the New Haven gage and at a smaller discharge. At Antwerp, the peak discharge was equivalent to that of a 15-yr flood. The difference in recurrence intervals at New Haven and Antwerp and the fact that the Maumee River peaked at Antwerp before New Haven was due to the timing of flood peaks on tributary streams.

Daily discharges from March 10 to May 1, 1978, at eight continuous-record stream-gaging stations in the Maumee River basin, northeastern Indiana and western Ohio, are tabulated in table 2 and are shown by hydrographs in figure 2. Also shown in figure 2 are instantaneous peak discharges. Peaks at several sites other than continuous-record stream-gaging stations are listed in table 1. Locations of all data sites listed in the table are shown in figure 1.

An identification number for each site is shown in the figures and is listed in the tables. These eight-digit numbers indicate downstream order position in the Geological Survey's national numbering system.

Some maximum discharges for the March floods exceeded the peaks of record. The peaks on March 24 at gages on the Maumee River at Fort Wayne and New Haven were noteworthy. The peak stage at New Haven was 23.58 ft, 2.2 ft higher than any flood since 1947, and the peak at Fort Wayne was 23.76 ft. Other stations whose peak stages exceeded the stage of record were Fish Creek at Hamilton, St. Joseph River at Cedarville, Cecil Metcalf ditch near Auburn, and Flatrock Creek tributary near Monroeville. The last two are partial-record stations.

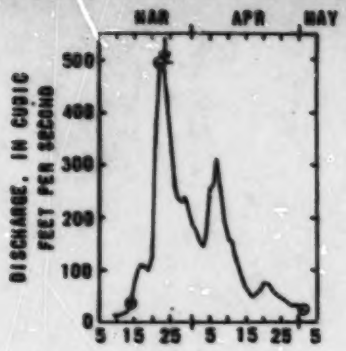
Table 1.--Summary of flood discharges in Maumee River

Station no.	Station name	Drainage area (mi^2)	Period of record (water years)
04177720	Fish Creek at Hamilton, Ind.	37.5	1970-78
04178000	St. Joseph River near Newville, Ind.	610	1947-78
04179000	St. Joseph River at Cedarville, Ind.	763	1956-78
04179500	Cedar Creek at Auburn, Ind.	87.3	1943-78
04179510	Cecil Metcalf ditch near Auburn, Ind.[b]	.78	1972-78
04180000	Cedar Creek near Cedarville, Ind.	270	1947-78
04181500	St. Marys River at Decatur, Ind.	621	1947-78
04182000	St. Marys River near Fort Wayne, Ind.	762	1931-78
04182590	Harber ditch at Fort Wayne, Ind.	21.9	1964-78
04182900	Maumee River at Fort Wayne, Ind.[d]	1,926	1907-78
04183000	Maumee River at New Haven, Ind.	1,967	1947-78
04183500	Maumee River at Antwerp, Ohio	2,129	1921-36, 1939-78
04191310	Flatrock Creek tributary near Monroeville, Ind.[b]	.83	1972-78

[a]March 24, 1978.
[b]Crest-stage gage.
[c]Result of ice jam.
[d]Stage-only station.
[e]Estimate.
[f]Extreme outside period of record.

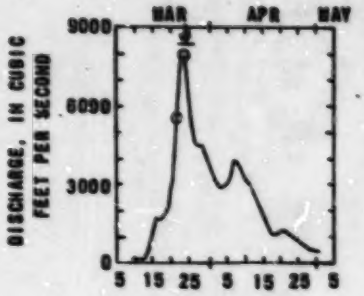
basin, northeastern Indiana and western Ohio, March 1978

Maximum flood previously known				Maximum during present flood				
		Discharge				Discharge		
Date	Gage height (ft)	(ft^3/s)	[(ft^3/s)/mi^2]	Date	Gage height (ft)	(ft^3/s)	[(ft^3/s)/mi^2]	Recurrence interval (years)
2-17-76	10.34	452	12.0	3-23-78	10.79	497	13.3	---
4-6-50	17.05	9,710	15.9	3-24-78	16.61	8,330	13.7	30
5-1-56	18.07	10,100	13.2	3-25-78	[a]18.62	8,960	11.7	25
4-5-50	9.90	1,520	17.4	3-22-78	9.33	1,240	14.2	10
6-25-77	8.57	170	218	3-21-78	9.12	200	256	---
4-5-50	11.67	4,870	18.0	3-22-78	10.35	3,860	14.3	5
2-10-59	[c]24.22	11,300	18.2	3-23-78	23.55	10,100	16.3	10
2-11-59	[c]19.42	13,600	17.8	3-21-78	18.39	13,300	17.5	50
2-20-71	11.55	728	33.2	3-21-78	9.88	755	34.5	5
3-26-13	26.1	-------	-----	3-24-78	23.76	[e]21,000	10.9	---
2-16-50	21.4	19,100	9.71	3-24-78	23.58	22,400	11.4	[e]75
[f]3-27-13	------	[e]40,000	18.8					
5-20-43	20.29	26,200	12.3	3-23-78	19.55	21,300	10.0	15
2-16-76	7.12	81	97.6	3-21-78	9.66	52	62.6	---



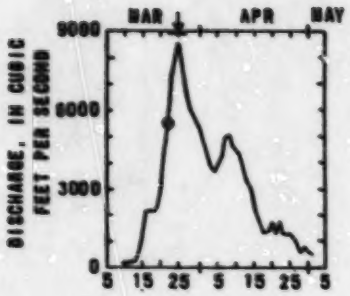
04177720 Fish Creek at Hamilton, Ind.

Drainage area = 37.5 square miles



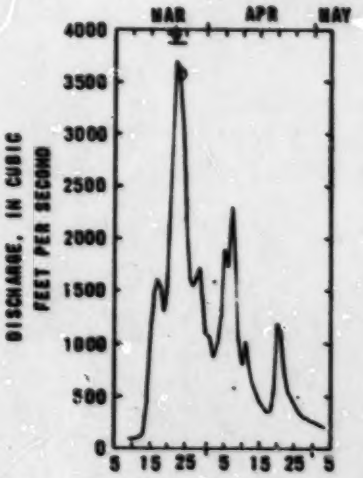
04178000 St. Joseph River near Newville, Ind.

Drainage area = 610 square miles



04179000 St. Joseph River at Cedarville, Ind.

Drainage area = 763 square miles



04180000 Cedar Creek near Cedarville, Ind.

Drainage area = 270 square miles

EXPLANATION

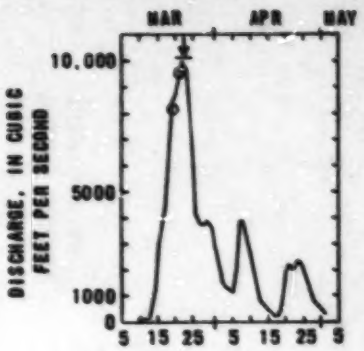
○ Discharge measurement

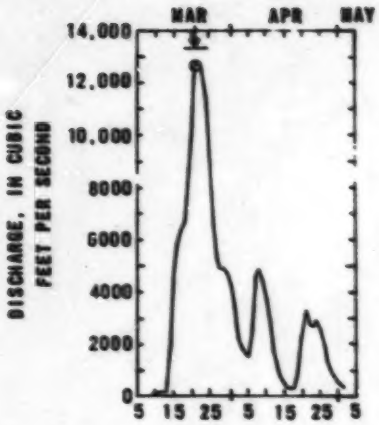
↓ Peak discharge

Figure 2.-- Hydrographs of discharge at selected U.S. Geological Survey

04181500 St. Marys River at Decatur, Ind.

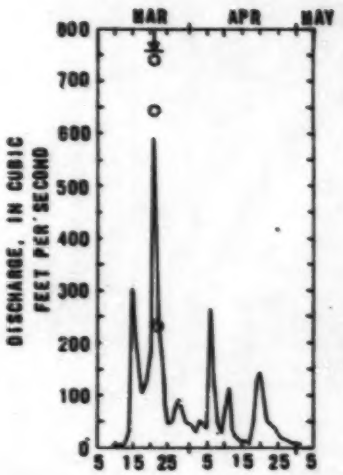
Drainage area = 621 square miles





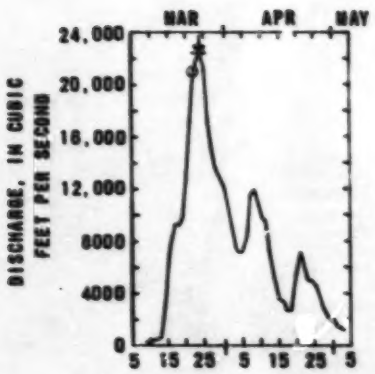
04182000 St. Marys River near Fort Wayne, Ind.

Drainage area = 762 square miles



04182580 Harber ditch at Fort Wayne, Ind.

Drainage area = 21.9 square miles



04183000 Maumee River at New Haven, Ind.

Drainage area = 1967 square miles

gaging stations in the Maumee River basin, northeastern Indiana, March 10- May 1, 1978.

-o-

REFERENCES

National Oceanic and Atmospheric Administration, 1978a, Climatological data for Indiana, January 1978: Asheville, N.C., National Oceanic and Atmospheric Administration, Environmental Data and Information Service, v. 83, no. 1, 20 p.

_____1978b, Climatological data for Indiana, February 1978: Asheville, N.C., National Oceanic and Atmospheric Administration, Environmental Data and Information Service, v. 83, no. 2, 20 p.

_____1978c, Climatological data for Indiana, March 1978: Asheville, N.C., National Oceanic and Atmospheric Administration, Environmental Data and Information Service, v. 83, no. 3, 20 p.

Table 2.--Daily discharges at selected USGS gaging stations in the Maumee River basin, northeastern Indiana and western Ohio, March 10-May 1, 1978

[USGS, U.S. Geological Survey]

STREAMS TRIBUTARY TO LAKE ERIE

04177720 FISH CREEK AT HAMILTON, IND.

LOCATION.--Lat 41°31'55", long 84°54'12", in SE¼SW¼ sec. 34, T. 36 N., R. 14 E., Steuben County, Hydrologic Unit 04100003, on left bank 6 ft upstream from bridge on County Road 775 South, 0.5 mi downstream from Hamilton Lake outlet, and 0.5 mi southeast of Hamilton.

DRAINAGE AREA.--37.5 mi^2.

GAGE.--Water-stage recorder. Datum of gage is 876.00 ft National Geodetic Vertical Datum of 1929.

Date	Mean gage height (ft)	Mean discharge (ft^3/s)	Date	Mean gage height (ft)	Mean discharge (ft^3/s)	Date	Mean gage height (ft)	Mean discharge (ft^3/s)
March 10	3.45	11	March 28	7.67	228	April 15	4.99	68
11	3.45	11	29	7.85	240	16	4.75	57
12	3.59	15	30	7.51	215	17	4.56	49
13	3.72	19	March 31	7.07	185	18	4.65	53
14	4.48	38	April 1	6.94	176	19	4.83	60
15	5.43	77	2	6.56	153	20	5.16	75
16	5.87	100	3	6.40	143	21	5.13	74
17	6.06	110	4	6.81	169	22	4.91	64
18	6.01	107	5	8.06	256	23	4.72	56
19	5.89	100	6	8.19	266	24	4.61	51
20	6.36	127	7	8.76	310	25	4.48	45
21	9.35	364	8	8.06	256	26	4.35	41
22	10.73	491	9	7.16	192	27	4.21	36
23	10.68	486	10	6.61	156	28	4.11	32
24	10.07	426	11	6.59	154	29	4.09	32
25	8.96	326	12	6.14	128	April 30	3.95	27
26	8.14	262	13	5.67	101	May 1	3.80	23
27	7.75	233	14	5.28	81			

Table 2.--Daily discharges at selected USGS gaging stations in the Maumee River basin, northeastern Indiana and western Ohio, March 10-May 1, 1978--Continued

STREAMS TRIBUTARY TO LAKE ERIE--Continued

04178000 ST. JOSEPH RIVER NEAR NEWVILLE, IND.

LOCATION.--Lat 41°23'08", long 84°48'06", in SW¼SW¼ sec. 18, T. 5 N., R. 1 E., Defiance County, Ohio, Hydrologic Unit 04100003, on left bank at bridge on Ohio State Highway 249, 3.5 mi northeast of Newville and 6.5 mi northwest of Hicksville, Ohio.

DRAINAGE AREA.--610 mi^2.

GAGE.--Water-stage recorder. Datum of gage is 795.40 ft National Geodetic Vertical Datum of 1929.

Date	Mean gage height (ft)	Mean discharge (ft^3/s)	Date	Mean gage height (ft)	Mean discharge (ft^3/s)	Date	Mean gage height (ft)	Mean discharge (ft^3/s)
March 10	4.10	150	March 28	14.18	4,510	April 15	10.60	1,940
11	4.13	160	29	14.18	4,510	16	9.76	1,620
12	4.23	170	30	13.96	4,270	17	8.89	1,320
13	4.45	180	March 31	13.59	3,890	18	8.21	1,090
14	5.71	514	April 1	13.20	3,530	19	8.04	1,050
15	8.75	1,140	2	12.71	3,140	20	a	1,200
16	a	1,750	3	12.39	2,920	21	a	1,300
17	a	1,700	4	12.27	2,840	22	a	1,250
18	a	1,700	5	12.49	2,990	23	a	1,150
19	a	1,900	6	12.89	3,290	24	a	1,050
20	a	2,200	7	13.66	3,960	25	a	950
21	a	3,200	8	13.60	3,900	26	a	850
22	14.90	5,500	9	13.32	3,640	27	a	750
23	16.25	7,590	10	12.85	3,250	28	a	650
24	16.47	8,040	11	12.69	3,130	29	a	550
25	15.72	6,650	12	12.46	2,970	April 30	a	500
26	14.80	5,310	13	11.88	2,590	May 1	a	470
27	14.26	4,610	14	11.24	2,230			

Table 2.--Daily discharges at selected USGS gaging stations in the Maumee River basin, northeastern Indiana and western Ohio, March 10-May 1, 1978--Continued

STREAMS TRIBUTARY TO LAKE ERIE--Continued

04179000 ST. JOSEPH RIVER AT CEDARVILLE, IND.

LOCATION.--Lat 41°11'46", long 85°01'27", in J. Hackley Reserve, T. 32 N., R. 13 E., Allen County, Hydrologic Unit 04100003, on left bank 700 ft upstream from highway bridge, 0.4 mi south of Cedarville, 0.5 mi upstream from Cedar Creek, 0.6 mi downstream from Cedarville Dam, and at mile 13.9.

DRAINAGE AREA.--763 mi^2.

GAGE.--Water-stage recorder. Datum of gage is 757.94 ft National Geodetic Vertical Datum of 1929.

REMARKS.--Flow regulated by Cedarville Reservoir and some flow diverted into storage of Hurshtown Reservoir. Stage-discharge relation affected at times by backwater from Cedar Creek.

Date	Mean gage height (ft)	Mean discharge (ft^3/s)	Date	Mean gage height (ft)	Mean discharge (ft^3/s)	Date	Mean gage height (ft)	Mean discharge (ft^3/s)
March 10	2.52	170	March 28	14.41	6,060	April 15	8.22	2,470
11	2.56	180	29	14.26	5,800	16	7.31	1,950
12	2.51	190	30	13.63	5,540	17	6.64	1,600
13	2.69	210	March 31	12.91	5,250	18	6.22	1,350
14	4.73	610	April 1	12.27	4,740	19	6.66	1,420
15	7.40	1,270	2	11.52	4,340	20	8.33	1,790
16	9.41	2,180	3	11.16	3,920	21	7.33	1,260
17	9.65	2,190	4	11.12	3,650	22	7.58	1,760
18	9.45	2,160	5	12.30	3,910	23	6.53	1,340
19	9.37	2,310	6	12.45	4,220	24	6.18	1,230
20	10.50	2,820	7	14.03	4,970	25	6.18	1,300
21	13.61	4,280	8	13.52	5,110	26	5.06	1,100
22	16.29	5,330	9	12.13	4,630	27	5.33	900
23	17.59	7,250	10	11.54	4,430	28	3.63	600
24	18.29	8,140	11	11.77	4,370	29	4.76	800
25	17.87	8,780	12	10.82	3,860	April 30	4.37	650
26	16.21	7,740	13	9.80	3,330	May 1	4.23	550
27	14.99	6,670	14	9.23	3,040			

Table 2.--Daily discharges at selected USGS gaging stations in the Maumee River basin, northeastern Indiana and western Ohio, March 10-May 1, 1978--Continued

STREAMS TRIBUTARY TO LAKE ERIE--Continued

04180000 CEDAR CREEK NEAR CEDARVILLE, IND.

LOCATION.--Lat 41°13'08", long 85°04'35", in NW¼NW¼ sec. 19, T. 32 N., R. 13 E., Allen County, Hydrologic Unit 04100003, on left bank at downstream side of bridge on State Highway 427, 3 mi northwest of Cedarville, 5.8 mi upstream from mouth, and 10 mi south of Auburn.

DRAINAGE AREA.--270 mi^2.

GAGE.--Water-stage recorder. Datum of gage is 780.09 ft National Geodetic Vertical Datum of 1929.

Date	Mean gage height (ft)	Mean discharge (ft^3/s)	Date	Mean gage height (ft)	Mean discharge (ft^3/s)	Date	Mean gage height (ft)	Mean discharge (ft^3/s)
March 10	1.60	75	March 28	5.76	1,600	April 15	2.91	430
11	1.64	80	29	6.01	1,710	16	2.76	381
12	1.69	97	30	5.40	1,430	17	2.65	346
13	1.87	136	March 31	4.65	1,090	18	2.68	355
14	2.90	451	April 1	4.57	1,060	19	3.19	524
15	4.70	1,120	2	4.10	860	20	4.84	1,180
16	5.42	1,440	3	4.43	998	21	4.61	1,080
17	a	1,600	4	4.95	1,230	22	3.76	728
18	a	1,500	5	6.42	1,890	23	3.24	541
19	a	1,300	6	6.03	1,720	24	2.99	461
20	a	1,600	7	7.40	2,310	25	2.81	397
21	a	2,700	8	6.09	1,750	26	2.65	346
22	a	3,710	9	4.58	1,060	27	2.52	306
23	9.99	3,640	10	3.91	785	28	2.42	277
24	8.93	3,050	11	4.51	1,030	29	2.35	257
25	7.19	2,220	12	3.92	789	April 30	2.29	240
26	5.84	1,630	13	3.40	597	May 1	2.23	224
27	5.61	1,530	14	3.10	494			

Table 2.--Daily discharges at selected USGS gaging stations in the Maumee River basin, northeastern Indiana and western Ohio, March 10-May 1, 1978--Continued

STREAMS TRIBUTARY TO LAKE ERIE--Continued

04181500 ST. MARYS RIVER AT DECATUR, IND.

LOCATION.--Lat 40°50'55", long 84°56'16", in SW¼SW¼ sec. 27, T. 28 N., R. 14 E., Adams County, Hydrologic Unit 04100004, on right bank 10 ft downstream from bridge on U.S. Highway 27, 0.5 mi upstream from Holthouse ditch, 1.3 mi north of Decatur, and at mile 29.1.

DRAINAGE AREA.--621 mi^2.

GAGE.--Water-stage recorder. Datum of gage is 760.44 ft National Geodetic Vertical Datum of 1929.

Date	Mean gage height (ft)	Mean discharge (ft^3/s)	Date	Mean gage height (ft)	Mean discharge (ft^3/s)	Date	Mean gage height (ft)	Mean discharge (ft^3/s)
March 10	3.13	77	March 28	17.67	3,740	April 15	5.74	408
11	3.15	80	29	17.98	3,890	16	5.00	291
12	3.37	99	30	17.45	3,640	17	4.51	223
13	3.76	136	March 31	15.69	2,900	18	4.59	235
14	9.00	1,150	April 1	13.46	2,210	19	6.17	488
15	15.68	2,880	2	10.91	1,570	20	11.99	1,840
16	17.66	3,740	3	9.90	1,330	21	13.63	2,250
17	18.78	4,380	4	9.62	1,260	22	12.71	2,000
18	20.79	6,190	5	9.28	1,180	23	13.49	2,210
19	22.40	8,280	6	12.08	1,930	24	14.04	2,370
20	22.64	8,640	7	17.97	3,900	25	12.84	2,040
21	23.12	9,390	8	18.00	3,910	26	11.00	1,600
22	23.49	10,000	9	16.64	3,260	27	8.95	1,100
23	23.31	9,710	10	14.76	2,590	28	7.71	804
24	22.22	8,030	11	11.90	1,810	29	6.87	622
25	20.29	5,710	12	9.38	1,200	April 30	6.04	461
26	18.31	4,090	13	7.64	789	May 1	5.21	322
27	17.66	3,730	14	6.58	564			

Table 2.--Daily discharges at selected USGS gaging stations in the Maumee River basin, northeastern Indiana and western Ohio, March 10-May 1, 1978--Continued

STREAMS TRIBUTARY TO LAKE ERIE--Continued

04182000 ST. MARYS RIVER NEAR FORT WAYNE, IND.

LOCATION.--Lat 40°59'16", long 85°06'03", in A. LaFontaine Reserve, T. 29 N., R. 12 E., Allen County, Hydrologic Unit 04100004, on left bank 130 ft downstream from Anthony Boulevard Extension, 0.8 mi downstream from Houk ditch, 5 mi south of Fort Wayne, and 10.8 mi upstream from mouth.

DRAINAGE AREA.--762 mi^2.

GAGE.--Water-stage recorder. Datum of gage is 748.97 ft National Geodetic Vertical Datum of 1929 (levels by State of Indiana, Department of Natural Resources).

REMARKS.--The flow is sometimes regulated by Grand Lake. Slight diversion from or into Wabash River basin and into Miami and Erie Canal. During extreme floods, some water bypasses gage and flows through Houk ditch and Paul Trier ditch into the Maumee River.

Date	Mean gage height (ft)	Mean discharge (ft^3/s)	Date	Mean gage height (ft)	Mean discharge (ft^3/s)	Date	Mean gage height (ft)	Mean discharge (ft^3/s)
March 10	2.41	100	March 28	11.62	4,880	April 15	3.43	519
11	2.44	105	29	11.60	4,860	16	2.94	381
12	2.54	120	30	11.36	4,700	17	2.57	294
13	2.87	170	March 31	10.52	4,150	18	2.74	345
14	6.32	1,870	April 1	8.99	3,230	19	4.32	844
15	11.06	4,510	2	7.18	2,200	20	7.45	2,370
16	12.74	5,730	3	6.47	1,820	21	9.13	3,310
17	13.46	6,310	4	6.16	1,660	22	8.15	2,740
18	13.88	6,650	5	5.91	1,540	23	7.99	2,640
19	15.45	8,450	6	7.82	2,610	24	8.49	2,940
20	16.92	10,700	7	11.16	4,560	25	8.01	2,650
21	18.33	12,800	8	11.55	4,830	26	6.86	2,030
22	18.12	12,800	9	10.88	4,380	27	5.56	1,380
23	17.97	12,500	10	9.74	3,670	28	4.64	971
24	17.33	11,400	11	8.17	2,760	29	4.07	747
25	15.95	9,170	12	6.14	1,660	April 30	3.55	561
26	13.82	6,620	13	4.82	1,040	May 1	3.04	406
27	12.07	5,220	14	3.99	719			

Table 2.--Daily discharges at selected USGS gaging stations in the Maumee River basin, northeastern Indiana and western Ohio, March 10-May 1, 1978--Continued

STREAMS TRIBUTARY TO LAKE ERIE--Continued

04182590 HARBER DITCH AT FORT WAYNE, IND.

LOCATION.--Lat 41°00'27", long 85°10'58", in NE¼SW¼ sec. 33, T. 30 N., R. 12 E., Allen County, Hydrologic Unit 04100004, on left bank 50 ft upstream from bridge on Baer Road, at Fort Wayne, 3.2 mi upstream from mouth. The stream name changes to Fairfield ditch 0.7 mi downstream at bridge on Lower Huntington Road.

DRAINAGE AREA.--21.9 mi^2.

GAGE.--Water-stage recorder. Datum of gage is 757.00 ft National Geodetic Vertical Datum of 1929.

Date	Mean gage height (ft)	Mean discharge (ft^3/s)	Date	Mean gage height (ft)	Mean discharge (ft^3/s)	Date	Mean gage height (ft)	Mean discharge (ft^3/s)
March 10	3.91	1.4	March 28	4.98	91	April 15	3.80	10
11	3.98	2.0	29	4.77	73	16	3.78	9.5
12	4.20	3.0	30	4.44	47	17	3.75	8.1
13	4.46	7.0	March 31	4.40	44	18	4.34	51
14	7.42	30	April 1	4.37	42	19	5.32	124
15	8.75	300	2	4.20	30	20	5.55	147
16	7.70	200	3	4.55	55	21	5.12	104
17	6.75	150	4	4.40	44	22	4.49	50
18	5.80	100	5	4.25	33	23	4.38	42
19	5.76	128	6	6.46	264	24	4.31	38
20	6.25	180	7	5.26	118	25	4.14	26
21	8.88	588	8	4.45	47	26	4.00	17
22	6.47	246	9	4.14	26	27	3.89	14
23	5.96	190	10	4.68	75	28	3.83	11
24	4.92	86	11	5.23	120	29	3.79	9.6
25	4.39	43	12	4.28	35	April 30	3.75	8.6
26	4.48	49	13	4.01	18	May 1	3.72	7.7
27	4.80	76	14	3.86	12			

Table 2.--Daily discharges at selected USGS gaging stations in the Maumee River basin, northeastern Indiana and western Ohio, March 10-May 1, 1978--Continued

STREAMS TRIBUTARY TO LAKE ERIE--Continued

04183000 MAUMEE RIVER AT NEW HAVEN, IND.

LOCATION.--Lat 41°05'06", long 85°01'20", in SE¼NE¼ sec. 2, T. 30 N., R. 13 E., Allen County, Hydrologic Unit 04100005, on left bank 600 ft upstream from bridge on Landin Road, 1,400 ft upstream from the Wabash Railroad bridge, 1.1 mi northwest of New Haven, 2.8 mi upstream from Sixmile Creek.

DRAINAGE AREA.--1,967 mi^2.

GAGE.--Water-stage recorder. Datum of gage is 724.51 ft National Geodetic Vertical Datum of 1929.

Date	Mean gage height (ft)	Mean discharge (ft^3/s)	Date	Mean gage height (ft)	Mean discharge (ft^3/s)	Date	Mean gage height (ft)	Mean discharge (ft^3/s)
March 10	3.52	390	March 28	a	13,500	April 15	a	3,600
11	3.73	460	29	a	13,000	16	a	3,400
12	3.93	540	30	a	12,500	17	a	2,700
13	4.19	773	March 31	a	11,500	18	a	2,700
14	7.74	3,140	April 1	a	10,000	19	8.87	3,920
15	12.27	6,600	2	a	8,500	20	11.15	5,700
16	14.23	8,240	3	a	7,400	21	12.98	7,180
17	15.24	9,260	4	a	7,200	22	11.48	5,960
18	15.24	9,260	5	a	7,300	23	10.38	5,060
19	15.71	9,790	6	a	8,500	24	10.41	5,080
20	18.18	12,900	7	a	11,500	25	9.96	4,720
21	20.76	17,000	8	a	12,000	26	8.96	4,990
22	22.81	20,700	9	a	11,000	27	7.63	3,060
23	a	21,800	10	a	9,800	28	6.90	2,540
24	a	22,400	11	a	9,500	29	5.93	1,850
25	a	21,300	12	a	7,400	April 30	6.18	2,020
26	a	17,800	13	a	5,500	May 1	5.52	1,570
27	a	15,000	14	a	4,700			

[a]No gage-height record, discharge estimated.